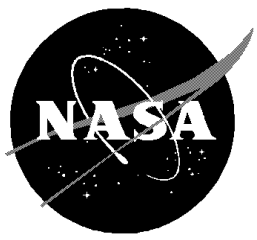
NSTS 21000-A07
Revision F

Data Requirements for the Training Annex

Space Shuttle Program Office

July 2000



National Aeronautics and
Space Administration

Lyndon B. Johnson Space Center
Houston, Texas

DESCRIPTION OF CHANGES TO

BLANK BOOK ANNEX NO. 7

DATA REQUIREMENTS FOR THE TRAINING ANNEX

CHANGE NO.	DESCRIPTION/AUTHORITY	DATE	PAGES AFFECTED
--	Baseline Issue (first issued)	09/29/78	All
REV A	Per direction of CR/DIR/ B14096-1	01/08/80	All
REV B	Convert document to Word One format/B14096-2	03/06/81	All
REV C	General revision/B14096-3	11/10/83	All
REV D	General revision/B14096-4	08/02/85	All
	Document number changed from JSC 14096 to JSC 21000-A07 per CR B21000-A07-5 dated 05/01/86		
1	Change to Signature Sheet/ B21000-A07-5	07/25/86	Signature page
REV E	Update to Documentation/ NSTS 21000-A07-6	10/09/87	All
	Document number changed from JSC 21000-A07 to NSTS 21000-A07 per CR G00051 dated 02/20/87		
REV F	General revision/B21000-A07-0007	07/18/00	All

Note: Dates reflect latest signature date of CR's received by PILS.

TRAINING ANNEX

(PAYLOAD NAME)

(DATE)

Date
PAYLOAD REPRESENTATIVE

Date
ANNEX BOOK MANAGER

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
LYNDON B. JOHNSON SPACE CENTER
HOUSTON, TEXAS

FOREWORD

This document defines the format and content of the payload training and simulation data required to support integration of a payload into the Space Shuttle Vehicle flight and ground operations by the various Space Shuttle Program (SSP) elements. The annexes required and scheduled for submittal of data by a specific payload are identified in the basic Integration Plan (IP) for the payload. The customer is requested to provide the data defined, sign the title sheet, and return the completed data to the cognizant SSP Annex Manager.

The SSP Annex Manager will review the data for SSP implementation and contact the customer if there are any questions or if further negotiation of the data is required.

After SSP approval, the specific payload annex will be published by replacing the data requirements cover sheet with the completed annex cover sheet.

Signed by Richard M. Swalin
Manager
National Space Transportation
Systems Program Office

PREFACE

Training Annex Data Requirements (NSTS 21000-A07) was written as a boilerplate (also known as blank book) to help customers define training requirements for their payloads and to serve as a medium by which the Lyndon B. Johnson Space Center (JSC), representing the National Aeronautics and Space Administration (NASA) Space Shuttle Program (SSP) and the customer can document agreements pertaining to the defined training requirements.

This payload specific Training Annex will identify the tasks required for training, describe responsibility for training tasks, and will define types of models and responsibility for model developments required for simulation training. Data required to develop payload models will also be defined in the training annex.

The format of this blank book is structured to cover a generalized payload and, as such, may need to be tailored to fit specific customer payload requirements and/or agreements between the SSP and the customer.

All questions should be answered, all tables completed, and all requested data should be supplied for each section of the annex. If a question, table, or schedule is not applicable, so indicate by Not Applicable (N/A) so that it is clear that the question, etc., was considered and not overlooked.

The SSP will help the customer define payload training requirements and will familiarize the customer with the capabilities of SSP training facilities and the process of integrating payload training into the overall payload/SSP training plan.

During the baselining process of the controlling Integration Plan (IP), the SSP and the customer will negotiate payload training requirements, nonstandard services, etc., after which the customer will submit payload training requirements per the schedule in the IP. These requirements will be reviewed and evaluated by the SSP and any further negotiations required will then commence.

If certain specifics in this training annex cannot be resolved or required data cannot be provided, and, if it is mutually acceptable between SSP and the customer to defer resolving an issue or providing data, then, insert a statement specifying when such issue will be resolved or when such missing data will be

provided. A revision to the baselined Training Annex can be initiated to update the Training Annex with the new information. Slipping the baseline target date should be avoided.

The SSP requests that all customers submit their requirements and initial annex draft electronically, either via Internet or on a standard 3 and 1/2-inch Personal Computer (PC) hard “floppy.” Word processing software should be Microsoft Word for Windows or equivalent software/format generally available in the civilian aerospace industry.

A final draft of the training annex will be delivered to the customer for formal approval after which the SSP will approve and formally baseline. The date for submitting this document for baselining will be determined by the Spaceflight Training Division (SFTD); a date that will be based on the necessary lead time required to implement and integrate the requirements so stated in this document. At that date all negotiations should be complete and both the payload customer and the SFTD should have a full understanding of their respective roles and responsibilities regarding payload training.

CONTENTS

TABLES

1.0 INTRODUCTION

The (payload name) Training Annex to the (payload name) Integration Plan (IP) documents the detailed payload training requirements and agreements as negotiated between the Space Shuttle Program (SSP) and the (payload name) customer. These agreements and requirements clarify the training requirements defined in the IP and document the training tasks, responsibilities, facilities, models, data and personnel required to support implementation of the agreements.

In case of any variation between this (payload name) Training Annex and the (payload name) IP, the IP shall take precedence. Any requirements submitted in this training annex that are not within the scope of the IP will not be considered binding on the SSP for implementation.

The (payload name) customer point of contact for developing and negotiating the requirements and agreements in this training annex is (provide name, title, address, telephone, fax, and electronic mail address).

The (payload name) customer will provide a representative who is technically familiar with the details of the (payload name) and the (payload name) interfaces with the Orbiter and who can assist the SSP with the implementation of the payload training requirements/agreements and support Joint Integrated Simulations (JISs) and the pre-JIS scripting process. This representative is (provide name, title, address, telephone, fax, and electronic mail address).

The SSP payload training supervisor responsible for implementing the agreements reached in this document is (provide name, address, telephone, fax, and electronic mail address).

Questions or comments concerning this training annex should be directed to training annex book manager (provide name, address, telephone, fax, and electronic mail address).

1.1 Payload Description

This section does not specify or define training requirements. Its purpose is to assist the reader with understanding of the payload.

In this section briefly describe the payload and the payload interfaces with the Orbiter. The description provided in the IP is appropriate; however, it may be condensed provided accuracy is not sacrificed nor misleading.

1.2 Payload Operations

This section does not specify or define training requirements. Its purpose is to assist the reader with understanding of the training requirements.

In this section briefly summarize overall payload operations and crew tasks.

2.0 (payload name) TRAINING REQUIREMENTS

This section defines the payload training requirements for the Shuttle flightcrew, the Lyndon B. Johnson Space Center (JSC) Mission Control Center (MCC) Flight Operations Support Personnel (FOSP) and (payload name) operations support personnel. The (payload name) training plan for the SSP flightcrew is outlined in table 2-1.

The payload customer and the JSC Mission Operations Directorate (MOD) Spaceflight Training Division (SFTD) will identify the training objectives, including critical training objectives, that are required to be successfully completed by the Shuttle flightcrew and FOSP. Critical payload training objectives are those that are required for mission safety and payload mission success.

2.1 Training Provided by Space Shuttle Program

The SFTD has the primary responsibility to train the Shuttle flightcrew and JSC FOSP on all Orbiter/payload interfaces and for implementing the identified training objectives. The SFTD will develop a flightcrew training flow which provides the appropriate number of sessions for the Shuttle flightcrew to become proficient to support payload operations. This training will be consistent with flightcrew procedures in the Flight Data File (FDF) and JSC MCC console procedures. This training flow is included in table 2-1.

The SSP will train the flightcrew on SSP-developed software.

(Note: If the Payload Trainer is required: “The flightcrew will exercise nominal, contingency, and malfunction procedures in the Payload Trainer for the (list the Orbiter interfaces and payload systems to be simulated).”)

(Note: If the Shuttle Mission Simulator (SMS) is required for standalone payload training add: “The flightcrew will exercise nominal, contingency, and malfunction procedures during standalone sessions in the SMS for the following (payload name and payload name/Orbiter) interfaces, (payload name) systems, and operations in accordance with the training plan listed in table 2-1.” Standalone training is defined as training in the SMS without the JSC MCC or any Payload Operations Control Centers (POCCs). (Note: If other JSC facilities are required, then describe here and add to table 2-1.)

The SSP will provide JISs to train operational and system interfaces between the flightcrew, JSC MCC flight controller personnel and (payload name control center). See section 5.0.

2.2 Training Provided by (payload name) Customer

The payload customer is responsible for providing the necessary lessons to sufficiently train the Shuttle flightcrew to support their operational roles and responsibilities directly associated with operating the payload experiments and any Payload and General Support Computer (PGSC) software provided by the customer. The customer will provide payload systems operations information and any supplemental information or training to the Shuttle flightcrew and JSC FOSP as required to meet the identified training objectives. This section may also summarize customer responsibilities for training customer personnel. Training provided by the (payload name) customer is detailed in table 2-1.

The payload customer is responsible for providing payload specific training for the payload FOSP residing in the JSC POCC or the payload remote POCC. The payload customer is also responsible for conducting intercenter exercises that would not involve JSC participation. (For example, Tracking and Data Relay Satellite (TDRS), a satellite attached to an Inertial Upper Stage (IUS), would have a TDRS POCC at White Sands and an IUS POCC at Sunnyvale, California).

If the customer uses a PGSC add the following: “The payload customer will provide a PGSC compatible emulator that will allow the flightcrew to exercise payload operating procedures that are performed using the PGSC. Depending upon crew payload training objectives, the customer may provide training software that can be integrated with the PGSC training load which would allow the crew to accomplish the same training objectives as would be with an payload emulator.“

The (payload name) customer is responsible for providing the necessary lessons to sufficiently train the SSP flightcrew to support their operational roles and responsibilities directly associated with operating the (payload name) experiments.

The (payload name) customer will provide a payload Familiarization (FAM) briefing at JSC for the SSP flightcrew, JSC flight controllers, and JSC instructor personnel. The briefing will be scheduled at a mutually acceptable time in accordance with the payload training plan listed in table 2-1. The (payload name) customer will conduct the FAM briefing according to the guidelines documented in Payload Familiarization Briefing Guidelines, SFOC FL2121, and any additional mutually agreed training objectives.

2.3 (payload name) Training Plan

Include in this section a brief summary or overview of the overall payload training plan.

List each training activity, session, lesson, and mutually agreed SMS standalone, integrated, and JIS that supports the training requirements summarized in section 2.1. Also include lessons that are planned or required in other SSP training facilities such as the Shuttle Engineering Simulator (SES), Full Fuselage or Crew Compartment Trainer.

The SSP will develop a detailed payload-specific training plan based upon requirements agreed upon within this IP Annex and will use the data in table 2-1 to budget and schedule the crew payload training activities.

For each session listed in table 2-1 provide a brief overview or synopsis of the course. If this information is readily available in another document, you may reference that document if doing so would significantly reduce the additional pages required to place such information in this annex.

JSC Crew Training Catalog courses required to prepare for flight-specific payload training should be listed for completeness in addition to mutually agreed standalone JISs.

Any JSC Training Catalog course listed in table 2-1 must be annotated to help avoid double booking.

A lesson or training plan flow chart may also be included in this section.

Complete table 2-1 per the following guidelines.

a. Lesson - Name/title of lesson, session, or course.

b. Trainee - Name the personnel whose attendance is required for the lesson. If the Mission Specialist (MS) positions have not yet been assigned, they may be referred to as MS primary and backup.
CDR=Commander, PLT=Pilot, MS=Mission Specialist, PS=Payload Specialist

c. Listing PSs as trainees is acceptable if PSs are required to attend any of these training sessions. This may help avoid conflicts between scheduling PS and Flight Crew training activities.

d. Facility (Fac) - Stipulate the facility in which the lesson takes place.
CR=Classroom, SMS=Shuttle Mission Simulator, CCT=Crew Compartment Trainer, FFT=Full Fuselage Trainer, SVT=Spacehab Volumetric Trainer, SST=Single System Trainer, MDF=Manipulator Development Facility, NBL=Neutral Buoyancy Laboratory, SES=Shuttle Engineering Simulator, PT=Payload Trainer

e. Location (Loc) - Name the location where the training session is to be conducted.
JSC=Lyndon B. Johnson Space Center, KSC=John F. Kennedy Space Center, MSFC=George C. Marshall Space Flight Center, (payload name facility).

f. Responsibility (Resp) - Name who is responsible for conducting the lesson.
Cust=Customer, National Aeronautics and Space Administration (NASA) or a NASA center, or a payload contractor.

g. Estimated Hours (Est Hr) - Estimate the hours required to accomplish the lesson. If listing a course time in days is more appropriate, then footnote or explain in Remarks column. Estimating in days may be appropriate if training takes place over a dedicated period of time.

h. Launch minus Months (L-Months) - Note the timeframe with respect to launch when the lesson should be taught.

i. Remarks - Self-explanatory. If special knowledge, prerequisite, or preparation is required for the lesson, then footnote or explain in this column.

Table 2-1.- PAYLOAD TRAINING LESSON PLAN

Lesson or training activity	Students	FAC	LOC	RESP	Est hr	L-Months	Remarks

2.4 Training Scheduling and Coordination

This section describes any agreements or payload customer requirements concerning the scheduling and coordination of the crew payload training.

3.0 JSC MCC CONSOLE TRAINING REQUIREMENTS

All (payload name) customer personnel residing in the JSC MCC Customer Support Room (CSR) or the JSC POCC will receive basic console FAM training from the SSP as a standard service. This training will consist of self-study workbooks and hands-on operations during the JISs. The (payload name) customer will coordinate any required MCC training during JISs with the SSP Mission Operations Directorate Spaceflight Training Division Simulation Supervisor.

All training of the JSC MCC and (payload name and payload control center name) interfaces will be accomplished through JISs. JSC MCC (payload name) personnel (will, may) conduct integrated simulations. Integrated simulations are defined as simulations conducted by JSC without customer POCC participation, although the invitation may be extended to the customer's POCC to participate and/or monitor.

On a noninterference basis, the SSP will provide the opportunity for (payload name and payload control center name) team members to sit with their respective JSC MCC counterparts during JISs to become familiar with JSC MCC operations.

4.0 TRAINING MODELS

This section identifies the models that will be developed to support (payload name) training listed in table 2-1 and who will have responsibility for developing the required models. This section will also address the data required to develop the models and who will supply such data.

The SFTD will determine to what extent and fidelity the SMS will model the payload and its interfaces with the Orbiter and will define the information that is required from the (payload name) customer to successfully develop an SMS model of the payload and its interfaces with the Shuttle. The customer will provide this information either in the Annex 1 or directly to the SFTD.

The due dates for submittal of this information from the customer will be determined by the time required by the SFTD to develop the SMS model.

The (payload name) customer will supply to the SSP MOD Space Flight Training Division all data/information required to support development of payload training models by Launch-13 months.

(Note: If the payload is a carrier such as an upper stage, free flyer, or a complex payload in the cargo bay, then replace the above paragraph with the following: "The (payload name) customer will supply to the SSP MOD Space Flight Training Division all data/information required to support development of payload training models by Launch- (as negotiated) months.")

4.1 SMS Software Models

The SSP will develop a math model which will be integrated with other Orbiter models in the SMS to support training sessions that use the SMS. The SSP may incorporate other model capabilities as necessary to accomplish operational training as outlined by FDF procedures. List the payload name/Orbiter interfaces and payload systems/subsystems that will be simulated and the degree of model fidelity required.

The (payload name) customer will supply to SFTD photographs, diagrams, illustrations of all Orbiter crew compartment control and/or display panels configured to support the (payload name).

Drawings, schematics, etc., supplied by the (payload name) customer will be legible, original-sized, functional and/or operationally oriented.

List in this section any other forms of data or information to be supplied by the customer that is required to successfully develop the required SMS models.

(Note: If the payload customer plans to develop a simulator add: "The (payload name) customer is responsible for developing any simulator necessary for providing any additional training required by the (payload control center name) Flight Control Team (FCT) to accomplish mission success for the (payload name).")

(Note: If the customer has a PGSC interface with the payload add: (payload name) customer is responsible for developing any simulation software required for support of integrated or JISs for any payload system/subsystem that interfaces with the PGSC. If the customer PGSC is dedicated only for use of the payload, then the customer will be required to furnish a PGSC for use during joint, integrated, and standalone simulations. The SFTD cannot guarantee that an SSP PGSC will be available. The (payload name) customer will supply any (workstation, simulator) required to host the (payload name) simulation software that interfaces with the PGSC and a (workstation, simulator) operator. If the customer plans to have an interface with the SMS, then define in this section the additional requirements necessary to effect this interface.)

4.2 Command Requirements

This section's purpose is to document the overall requirements for simulating commands to the payload. Elaborate in this section as necessary to adequately explain the modeling of payload commands.

(Note: If the number of commands to the payload is large; e.g., over 100, then add the following statement: "List the expected maximum number of commands to the SMS model the SSP must recognize or simulate in the following suggested format":

a. (payload control center) or JSC MCC (max number)

b. General Purpose Computer (GPC) (max number)

c. (payload name) unique panel (max number)

d. (list other commands sources) (max number))

List the payload subsystems, particular commanding activities, or the Orbiter/payload command interfaces that require modeling by the SMS.

The SMS model will simulate those commands that can be sent by the crew from the GPC to the (payload name). The SSP may choose to model only a subset of those commands which are those commands expected to be exercised during SMS training sessions.

The SSP will define the specific payload commands that will be simulated in the SMS in accordance with mutually acceptable payload customer and SSP training objectives. These specific command requirements will be documented in the Level C SMS Requirements. The SSP-authored Level C Requirements (which is an agreement between the SFTD and the SMS software contractor) specify the detail required of the SMS for payload modeling. These command requirements may also be documented in this annex, either by inserting a table, a list, or by adding an appendix.

The (payload name) customer will submit to the SSP MOD Space Flight Training Division the data required for the SMS to correctly model the (payload name) reaction to the command. SMS model response to the commands will be to the extent of SMS payload model fidelity and defined payload training objectives.

The SSP will only simulate (payload name) customer-required commands that have been defined in the (payload name) IP Command and Data Annex (C & D Annex), Annex 4. This simulation may be limited to voice protocol from the POCC to the SMS instructor for activation.

The (payload name) customer is responsible for assuring that the required commands are correctly documented in the (payload name) IP Command and Data Annex, Annex 4.

4.3 Telemetry Requirements

This section's purpose is to document the overall requirements for simulating telemetry parameters from the payload. Elaborate in this section as necessary to adequately explain the modeling of payload telemetry.

List the payload subsystems, particular telemetry activities, or the Orbiter/payload telemetry interfaces that require modeling by the SMS.

The SMS will model Payload Data Interleaver (PDI) downlinked telemetry data only to the extent of providing bit sync and lock which will allow onboard and ground data handling systems to indicate data lock. The SFTD will only provide simulated PDI data for those parameters required by the JSC FCT to train for the JSC-defined mission responsibilities. Telemetry parameters available only to the payload POCCs will not be simulated.

A PDI data stream will be provided to the payload POCCs that will contain correct header information, counter, and sync code to allow data handling units to properly sync and lock to the data stream. The remaining PDI data will consist primarily of a one-zero-one-zero fill pattern.

Telemetry parameters requiring modeling beyond those required to provide bit sync and lock will be modeled to the extent of SMS payload model fidelity and defined payload training objectives and usually only those parameters that drive onboard GPC displays. The SSP may choose to model only a subset of those telemetry parameters which are those parameters expected to be exercised during SMS training sessions.

If any payload telemetry data is required to be simulated to meet flightcrew or JSC flight controller training objectives, then the payload customer will provide the necessary information to the SFTD. The SFTD will define the information required from the payload customer.

The SSP will define the specific payload telemetry parameters that will be simulated in the SMS in accordance with mutually acceptable payload customer and SSP training objectives. These specific telemetry requirements will be documented in the Level C SMS Requirements. These telemetry parameter requirements may also be documented in this annex, either by inserting a table, or list, or by adding an appendix.

The (payload name) customer will submit to the SFTD the data required for the SMS to correctly model the (payload name) telemetry data. The SMS model of the telemetry parameters will be to the extent of SMS payload model fidelity and defined payload training objectives.

For all telemetry parameters requiring SMS simulation, the (payload name) customer will supply, as a minimum, the following information to the SSP Mission Operations Directorate Space Flight Training Division:

a. Measurement Stimulus Identification (MSID) numbers

b. Data and information that describes/explains the technical characteristics of all model driven and instructor variable parameters

c. Initial values for all model driven parameters

d. Value ranges for all model driven analog parameters

e. Values for all static parameters

f. Initial values and value ranges for all instructor variable parameters

For telemetry parameters which are variable only by SMS instructor control, the SSP may choose to limit the number of parameters that will be effected during any given period of the simulated timeline due to the level of simulation activity.

The (payload name) customer will assure that the required telemetry parameters are correctly documented in the (payload name) IP Command and Data Annex, Annex 4.

4.4 SMS Visual Model Requirements

The SFTD will construct a visual model of the (payload name and payload name/Orbiter or Orbiter/Spacelab) to support training sessions in the SMS. Elaborate in this section as necessary to adequately explain the modeling of the payload visuals.

The following aspects of the (payload name and payload name/Orbiter or Orbiter/Spacehab) interfaces will be simulated:

a. Placement in payload bay (all camera angles) (list any unique camera viewpoint or exception)

b. Appendage deployment (list appendage deployments requiring visuals)

c. Postdeploy motion (list attitude maneuvers, appendage deployments, etc.)

d. Deploy mechanisms

e. Unique markings, colorations, texture, etc.

Expand or edit this list as necessary to adequately describe and define the visual requirements.

The (payload name) customer will supply legible, original-sized, assembly type drawings and/or photographs from which visuals can be developed that depict the payload from all possible visual vantage points.

The payload customer will provide moments and products of inertia of any object deployed. The SFTD will determine what mathematical simplifications of this data may be acceptable for simulation purposes.

Specify, in this section, the data to be supplied by the customer.

4.5 Malfunction Requirements

This section's purpose is to document the overall capabilities of the SMS payload model to simulate anomalous or malfunction conditions of the payload or the Orbiter/payload or Orbiter/Spacehab/payload interfaces. Elaborate in this section as necessary to adequately explain the modeling of payload malfunctions and anomalies.

The SSP will define the specific malfunction capabilities that will be modeled in the SMS in accordance with mutually acceptable payload customer and SSP training objectives. These specific malfunction capabilities will be documented in the Level C SMS Requirements. These malfunction capabilities may also be documented in this annex, either by inserting a table, or list, or by adding an appendix.

For malfunction signatures beyond the fidelity of the SMS model, "green cards" will be utilized. "Green cards" are verbal or written inputs to the flightcrew, SSP flight controllers, or payload flight controllers describing scenarios, anomalies, or malfunctions that cannot otherwise be modeled or simulated by the SMS.

The document defining malfunction and anomaly corrective actions will be defined in a data submittal to the Payload Systems and Data Malfunction Procedures per table 8-1 in the IP.

4.6 Special Simulation Interfaces

Identify in this section any unique hardware that requires installation in the JSC SMS. Note who will have responsibility for supplying any hardware and when such hardware will be delivered. This hardware may include control panels, keyboards, cable, etc. Include statements that identify or describe this hardware plus statements that specify the purpose of the hardware. State any special concerns regarding the hardware.

List any constraints or restrictions placed on the payload by the SMS and, likewise, on the SMS by the payload.

This section will address SSP responsibilities with any customer-supplied hardware.

If there are any constraints on the availability of payload hardware that may impact training, then so note in the payload training schedule, figure 6-1, and explain in this section.

If the customer intends to provide a simulator for use at JSC which will interface with the JSC SMS, then describe and explain. The SSP will assess the feasibility of interfacing this simulator with the SMS before agreeing to its use.

4.7 Remote Manipulator System Training

Identify payload requirements to support Remote Manipulator System (RMS) training with the payload in the SES and the MDF. If a mockup of the payload or a balloon is required, state who will provide such and when it will be delivered. The SSP will determine if any of these mockups involve nonstandard services which will be addressed either in this section or in the IP.

(Note: If a visual model in the SES is required then add: The SSP will develop a visual model of (payload name) for use in the SES. The (payload name) customer will provide details and dimensions for such a visual model which must include viewpoints as seen from the RMS and payload bay cameras, and all Orbiter windows.)

Describe or summarize the following:

a. Type of RMS operations (for example, loaded only, deploy, retrieve only, or deploy/retrieve only)

b. Rendezvous and proximity operations

c. Tasks requiring single-joint mode of operations (Note: This is a failure mode operations only.)

The (payload name) customer will supply details describing the (payload name) exterior hardware including mounting brackets/trunnions, grapple fixtures, lights/reflective references, antenna, and etc.

List the data or information that will be supplied by the payload.

5.0 JOINT INTEGRATED SIMULATION REQUIREMENTS

Identify payload activities that should be exercised during JISs. Summarize major JIS training goals, specific mission phases, unique situations, or procedures that the flightcrew and/or flight controllers should exercise to prepare for the mission. Be specific if documenting simulation requirements that must be completed before the customer or the SSP will give approval for flight.

A Joint Integrated Simulations Working Group (JISWG) composed of representatives from (payload name) and SSP will be convened to develop detailed plans, scripts, scenarios and timelines to exercise, and to identify training objectives that should be exercised during JISs.

The (payload name) customer will name a JISWG lead representative by Launch-15 (or as negotiated) months who will support the convened JISWG sessions. This person must have technical knowledge of the (payload name) and the (payload name)/Orbiter interfaces or Orbiter/Spacehab/payload interfaces.

The JISWG will recommend to the Flight Operations Integration Group (FOIG) the number and types of JISs required for payload training. The FOIG will make the final decision allocating integrated and JIS time for all flight phases which includes ascent, entry, and on-orbit.

(Note: If a Joint Integrated Simulations Procedures (JISPs) document is required add: “The (payload name) customer and the SSP, through the JISWG, will create a JISP document that will stipulate procedures required for conducting JISs.”)

(Note: If a Payload Prelaunch Simulation is required add: The (payload name) customer and the SSP will conduct at least one Payload Prelaunch Simulation (PPS) to exercise the (payload name) and Orbiter activities occurring prior to Shuttle lift-off. The JISWG will develop detailed plans, scripts, and scenarios, and will identify training objective that should be exercised during PPS. The (payload name) customer will support the exercise by staffing (payload control center name) and KSC (KSC payload control center name), if any, as would be staffed during the actual prelift-off phase unless, by negotiations between the SSP and the payload customer, the payload customer will support from another appropriate location.)

Identify any JIS support that will be different from what is planned for real-time flight support. For example, payload customer management personnel may request to support a JIS via voice communication lines from a different location than would be planned for a flight.